

Amendments to the Claims

1. (currently amended) A method for processing radio frequency (RF) signals in a multi-antenna system, comprising:

generating L_t input data streams in a transmitter, ~~where L_t is an integer with t transmit antennas, where t is an integer, and where L_t is an integer less than or equal to t ;~~

modulating the L_t input data streams to RF signals;

switching the RF signals to t RF branches, ~~where t is an integer and $t \geq L_t$;~~

applying a phase-shift transformation to the RF branches by a $t \times t$ matrix multiplication operator Φ_1 , whose output are t RF signals, and in which entries of the matrix Φ_1 have constant modulus phase-only terms and the modulus phase-only terms adapt to an estimate of an average channel state;

transmitting the t RF signals over a channel by the t transmit antennas;

receiving the transmitted signals ~~by r antennas~~ in a receiver with r receive antennas, where r is an integer;

applying a phase-shift transformation to the r RF signals by a $r \times r$ matrix multiplication operator Φ_2 to generate r streams;

selecting L_r ~~branches~~ signal streams from the r streams, where L_r is an integer less than or equal to r ;

demodulating the L_r signal streams; and

processing the demodulated L_r signal streams in baseband to recover output data streams corresponding to the input data streams.

1 2. (original) The method of claim 1, in which each of the L_t input data stream has a
2 weight, and further comprising:
3 summing the L_r weighted data streams before the demodulating and
4 decoding.

1 3. (original) The method of claim 1, in which the L_t input data streams are
2 generated by a space-time block coder.

1 4. (original) The method of claim 1, in which the L_t input data streams are
2 generated by a space-time trellis coder.

1 5. (original) The method of claim 1, in which the input data streams are space-time
2 layered structures.

1 6. (original) The method of claim 1, in which $t = L_t$, and the matrix Φ_1 is an
2 identity matrix.

1 7. (original) The method of claim 1, in which $r = L_r$, and the matrix Φ_2 is an
2 identity matrix.

8. (canceled)

1 9. (original) The method of claim 1, in which entries of the matrix Φ_2 have
2 constant modulus phase-only terms.

1 10. (original) The method of claim 1, in which entries of the matrices Φ_1 and Φ_2
2 have constant modulus phase-only terms.

1 11. (currently amended) The method of ~~claim 8~~ claim 1, in which the phase-only
2 terms adapt to an estimate of an instantaneous channel state.

12. (canceled)

1 13. (original) The method of claim 1, in which the matrix Φ_1 is a fast Fourier
2 transform matrix.

1 14. (original) The method of claim 1, in which the matrix Φ_2 is a fast Fourier
2 transform matrix.

1 15. (original) The method of claim 1, in which the matrices Φ_1 and Φ_2 are fast
2 Fourier transform matrices.